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10/539,625

01/03/2006

Paul McCormac

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MORGAN LEWIS & BOCKIUS LLP
1111 PENNSYLVANIA AVENUE NW
WASHINGTON, DC 20004

EXAMINER

OLSON, ERIC

ART UNIT

PAPER NUMBER

1623

MAIL DATE

DELIVERY MODE

09/25/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/539,625 | Applicant(s) MCCORMAC, PAUL | |
| | Examiner Eric S. Olson | Art Unit 1623 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-14 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13 and 14 is/are allowed.
- 6) ☒ Claim(s) 1,2,5-9,11 and 12 is/are rejected.
- 7) ☒ Claim(s) 3 and 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

This office action is a response to applicant's amendment and arguments submitted May 6, 2008 wherein claims 1-4, 11, 13, and 14 are amended and claim 10 is cancelled. This application is a national stage application of PCT/GB03/05464, filed December 16, 2003, which claims priority to foreign applications GB0229443.7, filed December 18, 2002, and PCT/GB03/10795, filed April 25, 2003.

Claims 1-9 and 11-14 are pending in this application.

Claims 1-9 and 11-14 as amended are examined on the merits herein.

Applicant's amendment, submitted May 6, 2008, with respect to the objection to instant claims 4 and 14 has been fully considered and found to be persuasive to remove the objection as the claims have been amended to further limit the parent claims. Therefore the objection is withdrawn.

Applicant's amendment, submitted May 6, 2008, with respect to the rejection of instant claims 3-4 and 13-14 under 35 USC 112, second paragraph, for indefinitely reciting the term "substituent without defining said term, has been fully considered and found to be persuasive to remove the rejection as the claims have been amended to recite certain specific, distinct substituents. Therefore the rejection is withdrawn.

Applicant's amendment, submitted May 6, 2008, with respect to the rejection of instant claims 1-2 and 5-12 under 35 USC 102(b) for being anticipated by Eleuteri et al.,

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has been fully considered and found to be persuasive to remove the rejection as the claims have been amended to require that the beads swell during the synthesis.

Therefore the rejection is withdrawn.

Applicant's amendment, submitted May 6, 2008, necessitates the following new grounds of rejection:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 5-9, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams et al. (Reference included with PTO-892) in view of Sanghvi et al. (US patent 6274725, cited in PTO-892)

Adams et al. discloses a method for making amino-functionalized polystyrene resins. (p. 3706, scheme 1) These resins swell to up to 8-9 mL per gram of dry weight in organic solvents such as THF, chloroform, dichloromethane, and dimethylformamide. (p. 3709, table 2, see especially note b) Note that polystyrene has a volume of about 1 mL per gram of dry weight, so a final volume of 8-9 mL/g indicates a swell ratio of about 7-8. These solid supports can be used for phosphoramidite-mediated DNA synthesis. (p. 3710, right column paragraph 2, p. 3712 right column paragraph 2) polymer **8** (p. 3708, top of page) is reasonably considered to be a functionalized polystyrene

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according to claim 5. Adams et al. does not disclose a method of synthesizing oligonucleotides on this resin using an activator, in particular the activators recited in claim 2.

Sanghvi et al. discloses method for synthesizing nucleosides and oligonucleotides having a 3' or 5' hydroxyl group using an activator. (column 3 lines 32-50) The solvent used can be dichloromethane or tetrahydrofuran. (column 3 lines 62-64) In one embodiment the synthetic method uses a phosphoramidite approach. (column 4 lines 52-61) The activator is an organic salt which can be imidazolium or benzimidazolium. (column 10 lines 61-67) After the synthesis is completed the final product is cleaved from the solid support. (column 25 lines 22-24)

It would have been obvious to one of ordinary skill in the art at the time of the invention to perform the synthetic methods of Sanghvi et al. using the swellable resins described by Adams et al. One of ordinary skill in the art would have been motivated to combine the references in this manner because Adams et al. discloses that the resins described therein can be used as a solid support for phosphoramidite-mediated synthesis. One of ordinary skill in the art would reasonably have expected success because performing phosphoramidite-mediated synthesis on a solid support is a common technique in the art and well within the skill of one of ordinary skill in the art.

Therefore the invention taken as a whole is *prima facie* obvious.

Because this rejection was necessitated by Applicant's amendment, the rejection is made **FINAL**.

Conclusion

Claims 1, 2, 5-9, 11, and 12 are rejected. Claims 13 and 14 are seen to be directed to allowable subject matter. Claims 3 and 4 are objected to for depending from a rejected base claim but would be allowable if rewritten in independent form incorporating all the limitations of the rejected base claim and any intervening claims.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric S. Olson whose telephone number is 571-272-9051. The examiner can normally be reached on Monday-Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia Anna Jiang can be reached on (571)272-0627. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Eric S Olson/
Examiner, Art Unit 1623
9/19/2008

/Shaojia Anna Jiang, Ph.D./
Supervisory Patent Examiner, Art Unit 1623